

Clay Today

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Local school wows NASA

By Kelly J. Stigliano, Correspondent

ORANGE PARK- Students at one local academy drew attention Thursday, Oct. 14 when Orange Park Christian Academy hosted a press conference to present the first working prototype bioreactor to be launched aboard a NASA spacecraft one day.

"I'm just really proud of what the kids have done," said Kevin Simmons, an OPCA science teacher. "What's unique is the kids get to choose which track or what part of this company they want a chance to explore what they might want to do in their careers."

Simmons, a space-loving science teacher at the school, began 2001 with a goal in mind- to introduce the idea of a bioreactor traveling on board a NASA space shuttle. To do that, he rallied with six students and together they began what is known today as Tekna-Theos, Inc. The company, which now boasts more than 20 students who run the program, is a non-profit company centered on designing, building, testing and flying experiments into space that could help with the fight against osteoporosis. Its name was inspired by the Greek word "Tekna" meaning sons and "Theos" meaning God.

As part of the project, a "mid-deck" locker will house the bioreactor onboard the spacecraft and will support 30 "cell wafers"¹ into which bone cells from a rat's skull will have been injected. Small bags of various nutrients and drugs will be systematically fed by pumps into the wafers to study their affects on the bone cells. While trying to find an answer to bone degeneration will be instrumental in further manned space flights, it will also help with the treatment of osteoporosis on earth.

District Aide to Congressman Cliff Stearns Sherrie Porter as well as NASA contractors representing the University of California Irvine Greg Jenkins and Paula Davis attended the press conference and were willing to give their views about the students' findings. "These students have asked me some very intelligent questions," Jenkins said. "I have worked with engineers who have been less motivated than some of these kids."

Jenkins, who was impressed with" the students' enthusiasm, manages an engineering group from Huntsville, Ala., that has successfully developed 18 space flight payloads in support of NASA's Marshall Space Flight Center. Last year, students involved in the club spent part of the summer in Huntsville working alongside NASA engineers such as Jenkins testing hypothesis and perfecting their product.

Davis, a software designer, has a keen interest in this project. She and Jenkins have worked together for 13 years and agree that Tekna-Theos has a good concept - "NASA is interested in advancing educational programs." Jenkins said. This was proven in 2003 when Tekna-Theos Inc. was the first high school ever to receive a grant for \$18,640 awarded by the Florida Space Grant Consortium (FSGC). Again in 2004 they were awarded a FSGC grant for \$15,000.

Trips to the Marshall Space Flight Center in Huntsville have afforded the students opportunities to work with NASA engineers. The exposure the students have to the fields of engineering, science, business and marketing is staggering.

There is another area of interest developing within Tekna-Theos. Some of the younger students are exploring the possibility of life on Mars.

"Terra-forming on Mars" considers the idea that while the air on Mars is 95 percent carbon dioxide and plants use carbon dioxide during photosynthesis to produce oxygen. If enough plants could be grown on Mars, an earth-like atmosphere might support higher forms of life. Currently, Dylan Hall and Robyn Draughon are pouring over botany books to see which plants survive at the tops of high mountains and in deserts. Such plants would then be tested in a hypobaric chamber, one of Tekna-Theos' future projects which would simulate the atmospheric pressure on Mars.

For more information about Tekna-Theos, Inc. or its projects, visit <http://www.teknatheos.org>.